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Statistical Bulletin

METROPOLITAN LIFE INSURANCE COMPANY

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High Accident Death Toll Among Preschool Children

ACCIDENTS are the greatest single menace to the lives of American children at the preschool ages. Each year about 5,000 youngsters at ages 1 to 4 are killed in accidents in our country; this is approximately one fourth of the deaths from all causes combined among these children.

In order to determine in detail how and where young boys and girls lose their lives in fatal mishaps, the Metropolitan Life Insurance Company has analyzed the information available from the death claim records of children insured in the Company's Industrial Department who died in accidents in the years 1946 and 1947. The findings are summarized in the table on page 2. Even a cursory inspection of the tabulation reveals that accidental death comes to children under a wide variety of circumstances, ranging from a fall on the floor at home to the crash of a seaplane into a lake. Nevertheless, it is equally obvious from the table that two main classes of injury account for the majority of deaths from accidents among preschool children. Fatal mishaps involving motor vehicles were responsible for 34 percent of the total accident death toll at these ages, while burns, conflagrations, or explosions accounted for an additional 27 percent of the total; the two categories together thus were responsible for nearly two thirds of the 775 fatalities under analysis. Next in rank were drownings, with 13 percent of the deaths, falls with 6 percent, and poisonings with five percent. These rankings represent essentially the experience among the boys, who accounted for more than three fifths of all the deaths; for the girls, burns and conflagrations were the leading cause of accidental death with motor vehicle accidents a close second.

Almost all the transportation accident fatalities involved a motor vehicle, only a scattering of deaths being due to vehicles of other types. Moreover, of the 267 young boys and girls killed by motor vehicles in this experience, 217 were hit or run over—a large percentage of them right around their own homes. As a matter of fact, at least 26 lost their lives in their own yard or driveway; in some of these instances the child was killed by its own parent

NUMBER OF DEATHS FROM ACCIDENTS AMONG BOYS AND GIRLS AT AGES 1 TO 4 YEARS ACCORDING TO ACTIVITY OF CHILD AND TO AGENCY INVOLVED

INDUSTRIAL PREMIUM-PAYING BUSINESS (WEEKLY AND MONTHLY COMBINED)
METROPOLITAN LIFE INSURANCE COMPANY,* 1946 and 1947

ACTIVITY AND AGENCY INVOLVED	TOTAL	MALE	FEMALE
Accidents (Total)	775	483	292
Transportation (Total)	277	179	98
Motor Vehicle (Total)	267	174	93
Run over or hit by automobile	217	144	73
In driveway or yard of home	26	12	14
Collisions	33	21	12
Noncollision	14	9	5
Fall from automobile	6	5	1
Other	8	4	4
Not specified	3	0	3
Run over by railroad train	6	2	4
Run over by streetcar	2	2	0
Air transport	2	1	1
Burns, Conflagrations, Explosions (Total)	213	105	108
Burns	99	50	49
Playing with matches	10	1	9
Playing with or near flammable liquids	3	1	2
Member of family kindling fire with kerosene	1	1	0
Playing near bonfire, trash fire, etc.	3	3	0
Clothing ignited at open fires	10	5	5
Upsetting or falling into hot fluids	56	34	22
Other and not specified	16	5	11
Conflagrations	113	54	59
Member of family kindling fire with kerosene, etc.	7	5	2
Playing with matches	3	1	2
Explosion	1	1	0
Drowning (Total)	100	80	20
Creek, brook, river	52	38	14
Playing on ice	8	7	1
Fishpond	7	5	2
Cistern, well, watering trough	5	5	0
Cesspool, septic tank	4	4	0
Sewer	2	2	0
Drainage ditch	3	2	1
Water-filled hole	2	2	0
Swimming pool	4	2	2
Meter box (uncovered)	1	1	0
Bathtub	1	1	0
Boat accident	1	1	0
Not specified	18	17	1
Falls (Total)	50	27	23
Window	11	6	5
Porch	6	3	3
Steps	5	1	4
Fire escape, roof	4	2	2
Bed	3	1	2
Pony, playcart, etc.	4	3	1
Other and not specified	17	11	6
Ingestion of Poisonous Solids or Liquids (Total)	39	28	11
Oil of wintergreen (methyl salicylate)	8	5	3
Gasoline, kerosene, and cleaning fluids	6	5	1
Strychnine	4	3	1
Lye	4	4	0
Barbiturates	4	4	0
Arsenic	2	2	0
Other and not specified	11	5	6
Hanging, Choking, etc. (Total)	33	23	10
Hanging, strangulation	7	5	2
Choking by aspiration, swallowing of objects	26	18	8
Food	12	9	3
Other and unknown objects	14	9	5
Asphyxiation, suffocation	8	5	3
Struck or crushed by falling objects	12	8	4
Absorption of Poisonous Gas (Total)	12	7	5
Illuminating gas and other carbon monoxide	8	6	2
Other poisonous gases	4	1	3
Firearms (Total)	12	10	2
Children playing with, at home	5	4	1
Adult repairing	1	1	0
Not specified	6	5	1
Machinery Accidents	3	1	2
Electric Current	2	1	1
All Other Accidents (Total)	14	9	5
Food poisoning	3	1	2
Injured by animal	2	2	0
Runaway horse	1	1	0
Dog bite	1	1	0
Other and not specified	9	6	3

*Excluding Pacific Coast and Canada.

or some other member of the family, while in other cases a deliveryman was responsible. It is a striking fact that in the total of youngsters run over or hit by an automobile, there were nearly twice as many boys as girls.

Of the 213 insured children who died from burns, conflagrations, or explosions, more than one half were trapped in burning buildings. Turning our attention to those killed by burns and scalds (exclusive of conflagration), we find that of the 99 who lost their lives in this fashion, 56 were the victims of upsetting hot fluids or falling into them. The detailed circumstances responsible for these fatalities clearly indicate that youngsters must not be left to their own devices, even for a few moments, during meal-time or laundry time. Toddlers all too often pull electric percolators or other coffee makers from stoves or tables, with tragic results. Similarly, disaster frequently occurs when mothers leave their young boys and girls unattended near tubs or other vessels of scalding water during laundering activities.

The deaths from drowning at ages 1 to 4, as at every other period of life, are largely concentrated among males. In this experience, out of the 100 children who had drowned 80 were boys. A considerable number of the drownings took place in and around the home. It is noteworthy that well over one half of the children drowned lost their lives in creeks, brooks, rivers, and other bodies of water. Seven percent were drowned in fishponds, and a somewhat higher proportion died in cisterns, septic tanks, and the like.

While it is not feasible to discuss every item in the table, several additional means of injury merit at least brief mention. There were 50 fatal injuries resulting from falls, but no particular type was outstanding. The leading types were falls from windows and from porches which claimed 11 and 6 victims, respectively. Accidental poisonings caused the death of 39 preschool children (28 boys and 11 girls), oil of wintergreen claiming 8 lives, and kerosene, gasoline, and cleaning fluids, 6 lives. Similarly, choking is by no means rare; 26 of the children in this experience died from the aspiration or swallowing of objects, which in nearly half of the cases consisted of some form of food, such as peanuts, bread, etc. Firearm accidents and the absorption of poisonous gas each took 12 lives among these children.

Altogether, the figures in this study show conclusively, what common experience would suggest, that youngsters from the time they begin to move about on their own until they are off to school, will heedlessly venture wherever they can. Far too often, their curiosity leads them to destruction. At the preschool ages, more than in later years, safety of life and limb depends upon the constant vigilance of others. To keep an ever-watchful eye on young children is not an easy task, but the rewards are more than commensurate with the effort.

In order to encourage parents and

public health, medical, and other interested groups to give additional attention to the prevention of child accidents, the Metropolitan Life Insurance Company will launch an intensive child safety campaign during the fall of this year. The campaign will be co-sponsored by the Children's Bureau of the Federal Security Agency, the American Academy of Pediatrics, and the National Safety Council.

Our Educational Level a Generation Hence

THE attention recently focused on the war-induced difficulties in our school system tends to obscure both the real gains that have been made over the years in raising the educational level of the American people and the further gains that are in prospect. Even before the war, in 1940, almost as many men were attending college as were in high school a generation ago; high school enrollments had risen to seven times the figure for the earlier generation. Moreover, this trend toward increased schooling has continued during the present decade. By 1947, more than one third of the population at ages 21 and over had completed at least secondary school, as compared with only one fourth in 1940. At the other end of the scale, the proportion of adults with less than five years of formal education dropped from nearly 13 percent to less than 10 percent. As may be seen from the accompanying table, both white and colored persons, and each sex, shared in these gains.

The greatest improvement in the past seven years has been achieved at the younger adult ages, reflecting the rapid expansion of educational opportunities in the recent past. For example, since 1940 the proportion of white males 25–29 years with at least a high school education increased from 39 to 52 percent; at ages 30–34 the proportion increased from 33 to 47 percent; and at 35–44 years, from 25 to 37 percent.

This trend will continue. In fact, the educational level of the entire adult population will be raised as the younger people, with their currently increased schooling, move up into the adult ages, and as the older people, representing earlier conditions, pass out of the picture. As a result of this aging process alone, by 1975 about one half of the adult population will have had at least a secondary school education, and somewhat more than 6 percent a college education. These figures are based on the assumption that the various levels of educational attainment in 1947 will be maintained in future years.

It is almost certain that this assumption will prove very conservative. It is much more likely that the educational level of the country as a whole a generation hence, will approximate the recent higher record in some of the States, California for example. On the assumption that the level achieved in California in 1940 will become the national level

in 1975, nine out of every ten persons of voting age in the United States at that time will have at least an elementary school education. Moreover, the number of college graduates will almost double, increasing to about 9,000,000, or to nearly 8 percent of the adult population. This is well within the potentialities of our educational facilities, since

EDUCATIONAL ATTAINMENT OF POPULATION 21 YEARS OLD AND OVER, BY COLOR AND SEX, UNITED STATES; OBSERVED, 1940 AND 1947; AND ESTIMATED FOR 1975

YEAR	PERCENT OF ADULT POPULATION				
	TOTAL	WHITE		NONWHITE	
		Males	Females	Males	Females
	College Graduates				
1940	4.6	5.7	4.0	1.3	1.2
1947	5.1	6.1	4.7	2.2	2.5
Estimates for 1975					
Assumption of no further improvement*	6.4	7.7	5.9	3.0	3.5
Assumption of further improvement†	7.7	8.8	7.1	6.0	4.9
	Completed at Least Secondary School				
1940	26.6	26.4	30.5	7.6	9.6
1947	35.6	35.4	39.9	13.4	16.0
Estimates for 1975					
Assumption of no further improvement*	49.4	49.0	56.1	19.4	25.8
Assumption of further improvement†	57.8	57.1	59.2	53.7	56.5
	Completed at Least Elementary School				
1940	69.5	71.6	75.3	27.2	33.0
1947	75.9	77.9	80.7	40.2	44.8
Estimates for 1975					
Assumption of no further improvement*	84.3	85.9	89.3	48.9	64.4
Assumption of further improvement†	90.9	91.4	91.8	84.7	85.3
	Failed to Complete Five Years of Schooling‡				
1940	12.8	11.1	9.0	44.5	35.2
1947	9.7	8.4	6.9	33.3	25.4
Estimates for 1975					
Assumption of no further improvement*	4.3	3.7	2.4	20.3	9.6
Assumption of further improvement†	2.8	2.4	2.2	7.1	5.4

*Educational level attained in the United States in 1947.

†Educational level attained in California in 1940, with differential between whites and nonwhites cut in half.

‡Includes persons without any schooling.

those receiving college and university degrees in 1948 number more than a quarter million, whereas an annual average of about 150,000 college graduates would be needed to attain the 9,000,000 mark by 1975.

At the same time, it is expected that the proportion of those with less than five years of schooling will be sharply reduced from the present figure of 9.7 percent of the adult population to less than three percent. The latter figure is close to the irreducible minimum, allowing for the mentally defective and deficient.

The higher levels of educational achievement in prospect for the years ahead augur well for the maintenance and expansion of our democratic institutions. It also assures the nation ample reserves of well-educated men and women so necessary to the specialized needs of our society.

Smallpox Almost Eradicated

SMALLPOX is rapidly approaching extinction in the United States. In 1947, there were only 173 cases of the disease reported in the entire country, as compared with 356 cases the year before and with 11,673 in 1937. This is a reduction of more than 50 percent in a single year and of more than 98 percent in a decade. Furthermore, progress in the eradication of smallpox is continuing; in the first 20 weeks of 1948 there were only 45 cases, about one third the corresponding figure of a year ago.

Seventeen States and the District of Columbia were entirely free from the disease in 1947, while six other States reported only one case each. The details appear in the table on page 7. The perfect record for the State of Washington last year contrasts sharply with the experience in 1946 when 88 cases resulted from infection brought in from the Far East. Deserving of special mention are the six New England States, as well as Pennsylvania, Delaware, Maryland, Virginia, and the District of Columbia, which have not had a single case of smallpox in at least three years. Rhode Island can boast an unblemished record for two decades.

While 1947 was a banner year, it had the potentialities of being a disastrous one. Early in the year, virulent smallpox was introduced into New York City by a merchant returning from Mexico City. As soon as the local health authorities became aware of the fact, they immediately drafted plans to vaccinate as many people in New York City as possible. Through a heroic effort and the cooperation of private physicians, pharmacists, the press, the radio, and many organizations, more than 6,000,000 people in the city were vaccinated in less than a month —more than 5,000,000 of them within two weeks.* This mass vaccination program succeeded in prevent-

*Weinstein, Israel. An outbreak of smallpox in New York City. American Journal of Public Health. November, 1947, page 1376.

ing the spread of the disease beyond the 12 cases contracted before the campaign was started. The reaction of those vaccinated indicated that the number of susceptibles in the population was sufficient to have made a major epidemic possible.

The smallpox problem is now largely concentrated in some of the midwestern and southwestern States. Indiana last year again had the dubious distinction of leading in the number of cases reported, namely, 29. Texas ranked second with 15, Ohio and Kansas each registered 13 cases, and New Mexico and Missouri each had 11. These six States were responsible for more than one half of all the cases reported in the country. There is no reason why the disease should persist in these areas, inasmuch as it can so easily be prevented.

It is noteworthy that in all of

CASES OF SMALLPOX REPORTED IN THE UNITED STATES, 1945 TO 1947

STATE	1947	1946	1945	STATE	1947	1946	1945
United States	173	356	346	South Atlantic—*Continued*			
				Virginia	0	0	0
New England	*0*	*0*	*0*	West Virginia	3	1	0
Maine	0	0	0	North Carolina	2	2	1
New Hampshire	0	0	0	South Carolina	2	0	2
Vermont	0	0	0	Georgia	3	3	10
Massachusetts	0	0	0	Florida	0	2	0
Rhode Island	0	0	0				
Connecticut	0	0	0	East South Central	*16*	*24*	*43*
				Kentucky	5	5	5
Middle Atlantic	*13*	*2*	*0*	Tennessee	6	5	8
New York	12	0	0	Alabama	1	5	5
New Jersey	1	2	0	Mississippi	4	9	25
Pennsylvania	0	0	0				
				West South Central	*25*	*58*	*59*
East North Central	*50*	*74*	*98*	Arkansas	4	9	30
Ohio	13	18	8	Louisiana	2	5	7
Indiana	29	42	50	Oklahoma	4	16	13
Illinois	2	6	12	Texas	15	28	9
Michigan	1	3	16				
Wisconsin	5	5	12	Mountain	*16*	*41*	*41*
				Montana	0	1*	4
West North Central	*41*	*46*	*71*	Idaho	3	17	13
Minnesota	1	4	3	Wyoming	1	4	2
Iowa	2	15	10	Colorado	1	13	5
Missouri	11	10	11	New Mexico	11	2	4
North Dakota	4	1	10	Arizona	0	1	6
South Dakota	4	0	10	Utah	0	0	3
Nebraska	6	6	10	Nevada	0	3	4
Kansas	13	10	17				
				Pacific	*2*	*103*	*21*
South Atlantic	*10*	*8*	*13*	Washington	0	88	10
Delaware	0	0	0	Oregon	0	1	6
Maryland	0	0	0	California	2	14	5
District of Columbia	0	0	0				

*Removed from a troop train.

Canada last year there was not a single case of smallpox; only seven cases have been reported in the past three years, all of them occurring in the Province of Saskatchewan.

The complete eradication of smallpox in the United States is clearly in sight. This goal can be reached—and kept—through vaccination and periodic revaccination. Our country has become the crossroads of the world, and unless our people are immunized there is always the danger that the disease may be brought in from other countries and cause a serious epidemic here. Recent events have proved that this danger is more than an academic speculation.

On the Confidential Reporting of Causes of Death*

SOME physicians may be reluctant to report on the official record a cause of death which may reflect unfavorably upon the memory of the deceased. On the assumption that the official statistics for such causes of death, particularly alcoholism and syphilis, would thereby be improved, a confidential method of reporting was inaugurated, as an experiment, in the Borough of Manhattan, New York, January 1, 1939. The confidential method differs from the open method previously used (and still used everywhere else in our country), in that the physician's medical report is made on a separate form and is not released with the copy of the death record. In 1943, the New York City Department of Health initiated a study of the statistical efficiency of the confidential

*This article is based upon the paper "Relative Efficiency of the Open and the Confidential Method of Reporting Causes of Death," by Paul H. Jacobson. *American Journal of Public Health*, Vol. 38, June 1948, pp. 789–807.

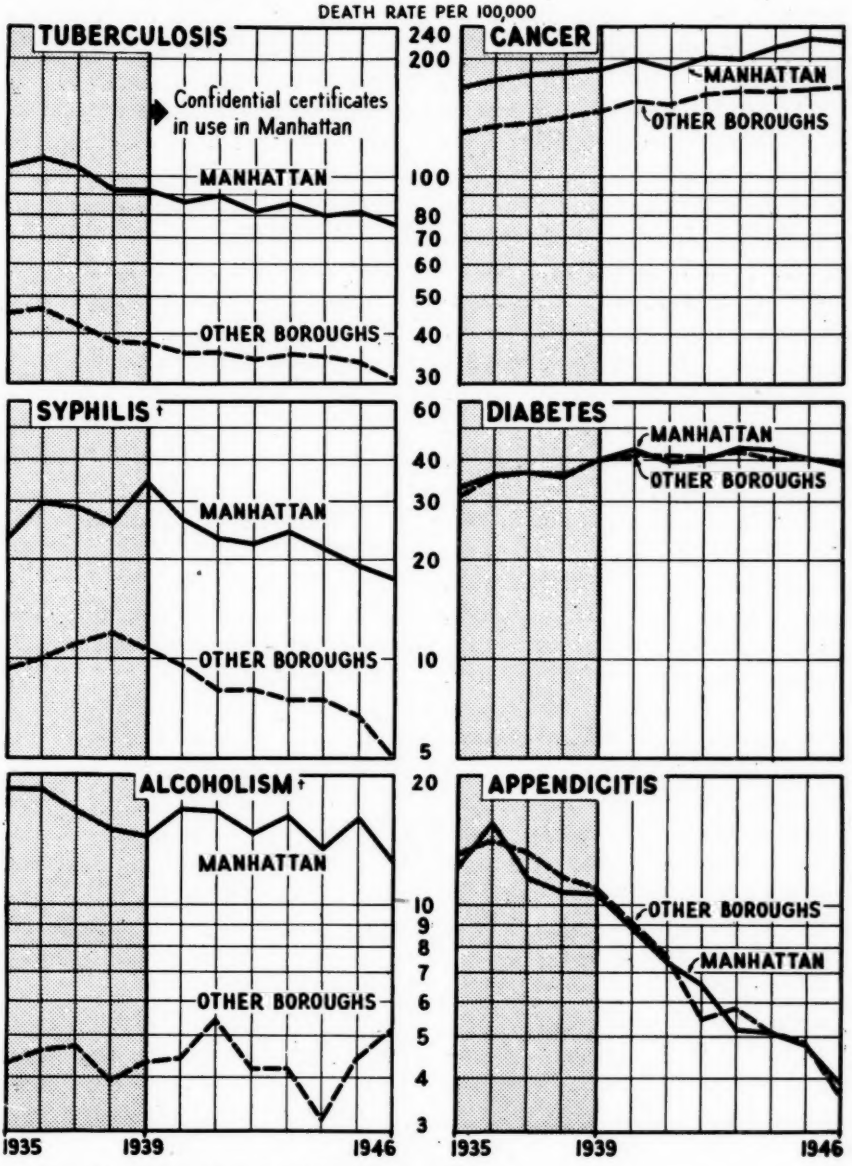
NUMBER OF DEATHS ASSIGNED TO SPECIFIED CAUSES ON DEATH CERTIFICATES AS PERCENT OF NUMBER ASSIGNED TO THESE CAUSES FROM HOSPITAL CASE HISTORIES. WHITE DECEDENTS, PROPRIETARY HOSPITALS, CITY OF NEW YORK, 1937-1938, 1939 AND 1941

CAUSE AND INTERNATIONAL LIST NUMBER	MANHATTAN		OTHER BOROUGHS	
	1937-1938	1939, 1941	1937-1938	1939, 1941
Alcoholism (77, 124a)	*60*	*43*	*60*	*56*
Syphilis (30)	*50*	*67*	*29*	*75*
Puerperal infection (140, 142a, 145a, 147)	*100*	*33*	*64*	*77*
Diabetes mellitus (61)	78	78	86	87
Appendicitis (121)	79	90	91	84
Tuberculosis (13-22)	100	109	91	125
Cancer (45-55)	103	99	100	101

NOTE—Figures in italics are based on a small number of deaths and may, therefore, be influenced by chance fluctuations.

MORTALITY FROM SELECTED CAUSES

MANHATTAN COMPARED WITH OTHER BOROUGHS OF NEW YORK CITY*



*By residence; nonresidents included in borough of death.

†To maintain comparability between the 1929 and 1938 revisions of the International List, deaths prior to 1940 are increased by 9.2 percent for alcoholism and by 9.1 percent for syphilis.

certificate. The conclusion drawn from that investigation, recently completed, is that "*to date, the use of the confidential death certificate has had no significant effect on the accuracy of mortality statistics in New York City.*"

The study included an intensive analysis of the case histories of 7,330 persons who had died in hospitals in 1937–1938 (when open reporting was in use in all boroughs) and in 1939, 1941 (when confidential reporting was in effect in Manhattan). The primary cause of death as determined from hospital diagnoses was compared with the primary cause as reported on the death certificate. For most causes, including cancer, the two sources were in substantial agreement. On the other hand, five causes were understated on death certificates, according to the hospital records. These causes together accounted for about one seventh of all the deaths.

A review of the data for the understated conditions reveals no evidence that more accurate statistics resulted from the use of the confidential death certificate. Only about one half of the deaths due to alcoholism were so reported, whether the open or the confidential certificate was used. Improvement in the reporting of the mortality from syphilis was noted in all boroughs. This, no doubt, reflects the intensive educational and clinical programs which were launched in New York in 1935, to bring syphilis under control. The findings are basically similar for the other understated conditions.

The fact that the confidential method has not proved more effective than the open is confirmed by the trends in the official mortality statistics (see chart on page 9). If alcoholism and syphilis were completely reported on the confidential certificate, their recorded death rates should have almost doubled in Manhattan, where the confidential report has been in use since 1939. Similarly, marked rises should have occurred for diabetes and appendicitis. Actually, the introduction of the confidential certificate had no such effect; the statistics for Manhattan show trends parallel to those for the other boroughs, which used the open certificate. Moreover, the statistics for 1947, when the use of the confidential report became city-wide, indicate no changes in the cause of death picture that might be attributed to confidential reporting.

Judged by the findings from this study, the confidential method does not improve the accuracy of mortality statistics. In fact, no method of reporting, of itself, can be expected to eliminate all of the factors which impair these statistics. Carelessness, ignorance of the rules of certification, and lack of understanding of the mechanisms of death have a greater bearing on the information that is recorded than does the method or the physician's unwillingness to record causes of death to the best of his knowledge.

CRUDE DEATH RATES* PER 100,000 POLICYHOLDERS FROM SELECTED CAUSES
INDUSTRIAL PREMIUM-PAYING BUSINESS—*Weekly and Monthly Combined*
METROPOLITAN LIFE INSURANCE COMPANY

MAY 1948

CAUSE OF DEATH	ANNUAL RATE PER 100,000 POLICYHOLDERS*				
	May 1948	May 1947	YEAR TO DATE: END OF MAY		
			1948	1947	1946
ALL CAUSES—TOTAL	684.3	678.2	709.8	706.8	759.9
—Excluding war deaths	*684.0*	*677.4*	*709.6*	*705.9*	*737.2*
Typhoid fever	0.1	0.2	0.1	0.2	0.1
Measles	.5	.3	.7	.3	1.0
Scarlet fever	.1	—	.1	.1	.2
Whooping cough	.4	.4	.5	.6	.7
Diphtheria	.2	.4	.3	.7	.7
Influenza	1.6	3.0	2.6	4.5	7.9
Pneumonia (all forms)	23.9	24.0	28.4	29.5	32.7
Tuberculosis (all forms)	30.0	32.7	28.8	32.0	35.9
Tuberculosis of respiratory system	27.1	29.4	26.1	29.0	32.5
Syphilis	6.8	6.5	7.1	7.5	7.8
Acute poliomyelitis	—	.3	.1	.4	.2
Cancer (all forms)	113.2	105.1	112.5	108.5	105.8
Diabetes mellitus	25.8	26.9	25.5	24.4	26.9
Principal chronic cardiovascular-renal diseases	318.9	310.5	342.8	332.6	338.2
Cerebral hemorrhage	60.7	62.2	64.3	64.8	64.9
Diseases of the coronary arteries and angina pectoris	78.4	67.7	82.5	73.5	68.3
Other chronic heart diseases†	144.9	145.6	158.9	155.9	164.4
Chronic nephritis	34.9	35.0	37.1	38.4	40.6
Diarrhea and enteritis	2.2	4.0	3.1	3.7	2.9
Appendicitis	2.8	3.1	2.6	2.7	3.5
Puerperal state—total	2.4	3.4	2.5	3.3	3.1
Suicides	8.3	6.3	6.9	6.6	7.4
Homicides	3.2	3.0	3.2	3.0	3.5
Accidents—total	39.9	39.0	39.0	40.2	47.8
Home accidents	6.7	6.6	10.6	10.3	10.9
Occupational accidents	4.2	4.3	4.1	4.7	4.2
Motor vehicle accidents	13.6	12.6	12.2	13.7	15.1
War deaths (enemy action)	.3	.8	.2	.9	22.7
All other causes of death	103.7	108.4	102.9	105.2	111.1

*The rates for 1948 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.

†International List (1940) titles 92, 93 (c), (d), (e), and 95.

NOTE—The death rates in this table differ from the rates previously published on the basis of the Weekly Premium-Paying Business alone.

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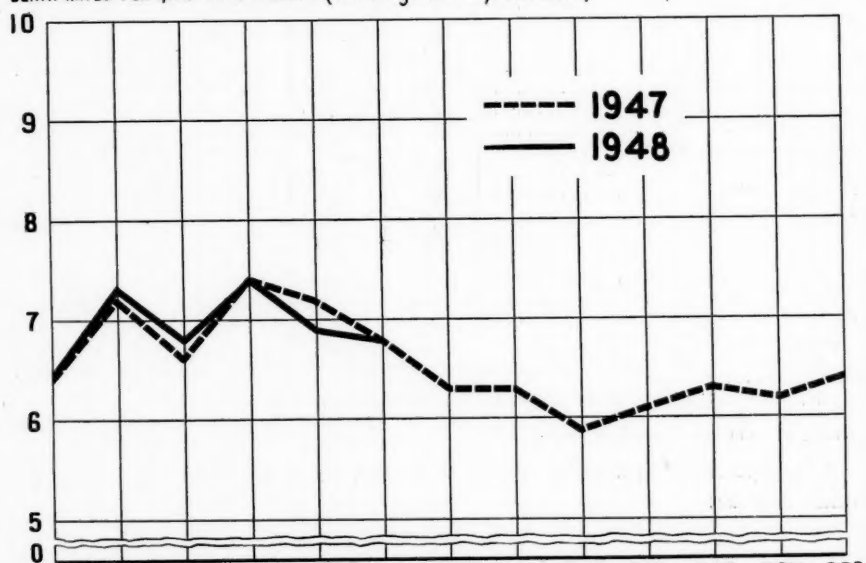
MORTALITY FROM ALL CAUSES

METROPOLITAN LIFE INSURANCE COMPANY · INDUSTRIAL PREMIUM-PAYING BUSINESS
WEEKLY AND MONTHLY COMBINED

DEATH RATES PER 1,000 · ANNUAL BASIS (*1948 figures are provisional*)



NOTE—The death rates in this chart differ from the rates previously published on the basis of the Weekly Premium-Paying Business alone.

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